

لطلاب السنة التحضيرية بجامعة الملك خالد بأبها – المحالة

2015

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و نشر المدونة بين الطلاب لتعم الفائدة

Kingdom of Saudi Arabia
King Khalid University

Ministry of Higher Education
Joint Programs, Healthy Sciences Program

Final Exam –Organic Chemistry – Chem 111

Date:27/7/1435

Time : 120 min

Name (in Arabic) : --

Section number:------------------

University number:--------------------

Serial number:--------------------

Model number: (1)

Choose the correct answer:(50 question & 10 pages)

1) Almost the entire mass of atom is concentrated in the-----------

a) Protons b) Electrons c) Nucleus d) Neutrons

2) The atomic number of an element having maximum number of unpaired electrons in the sub-shell p is

a) 7 b) 10 c)12 d) 16

3) Which one of the following correctly describes the trend in electronegativity?

a) Increases across a period and decreases down a group
b) Decreases across a period and decreases down a group
c) Increases across a period and increases down a group
d) Decreases across a period and increases down a group

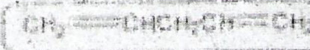
4) In acetylene molecule, between carbon atoms there are

a) Three sigma bonds
b) One sigma and two pi bonds
c)Two sigma and one pi bonds
d) Three pi bonds

5) When a double bond is formed between two atoms, one of the bonds is a sigma bond and the other is a pi bond. The pi bond is created by the overlap of

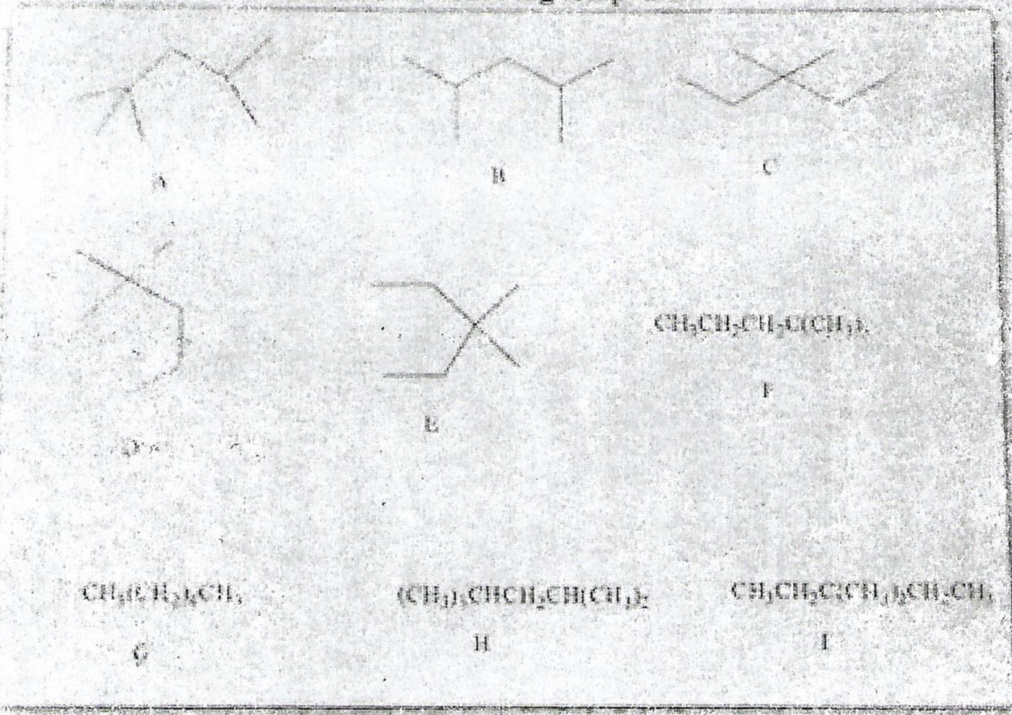
a) Sp^2 orbitals b) sp^3 orbitals c) p orbitals d) s orbitals



6) In the hydrocarbon, 

a) One C atom is sp^3 hybridized.
b) There are two sp hybridized C atoms.
c) The two terminal C atoms are sp^3 hybridized.
d) All C atoms are sp^2 hybridized.

For question 7- 12 consider the following compounds



7) Which bond-line formula (A-E) are the same?

a) A and B b) B and C c) C and E d) A and D

8) Which bond – line formula (A- E) is not a constitutional (structural) isomer of the others?

a) A b) B c) C d) D

9) The relationship between compound B and C is
a) Same compound b) Positional isomer

c) Chain isomer d) Functional group isomer

10) Which condensed formula (F-I) is correspond to bond – line formula A?

a) F b) G c) H d) I

11) Which condensed formula (F-I) is not correspond to any bond – line formulas(A – E)?

a) F b) G c) H d) I

12) Which of the following compound has the highest boiling point

a) A b) B c) D d) I

13) Which of the following hydrocarbons does not have isomers?

a) C_4H_{10} b) C_5H_{12} c) C_3H_8 d) C_6H_{14}

14) The name of the alkane isomer of cis-3-hexene is:

a) 2-Methylpentane b) n-Hexane
c) 2,3-Dimethylbutane d) Cyclohexane

15) Which of the following compounds is a functional group isomer of ethanol?

a) Ethene b) Diethyl ether c) dimethyl ether d) Propanol

16) For which of the compounds below are cis-trans isomers possible?

1	2	3
$CH_3CH{=}CH_2$	$CH_3CH_2CH{=}CHCH_3$	$CH_3CH{=}CHCH_3$

a) Only 2 b) both 1 and 2 c) both 2 and 3 d) all three

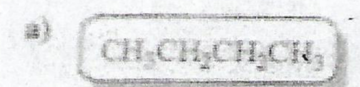
17) Which of the following does NOT exhibit geometric isomerism

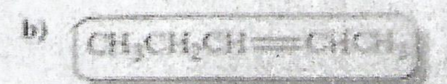
a) 4-Octene b) 1-Hexene c) 2-Hexene d) 2-Pentene

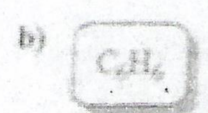
18) Which of the following statements is FALSE regarding the reaction between Cl_2 and C_2H_6?

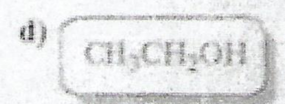
a) It is a substitution reaction.
b) The reaction will give a single product of C_2H_5Cl.
c) The reaction mechanism involves free radicals.
d) The first step in the mechanism is the cleavage of the Cl-Cl bond.

19) Which of the following will undergo an addition reaction with chlorine?

a) 

b) 

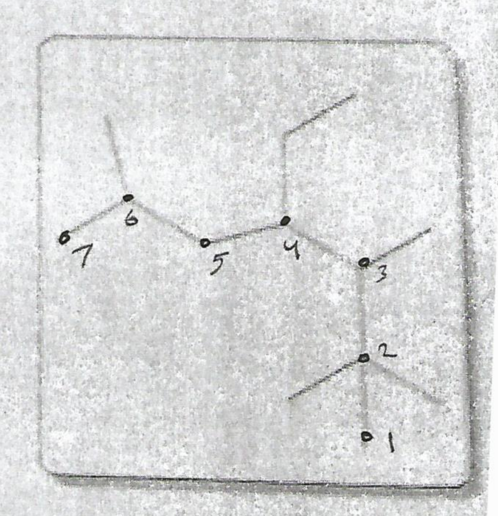
b) 

d) 

20) Dehydration of an alcohol leads to the formation of an -------------

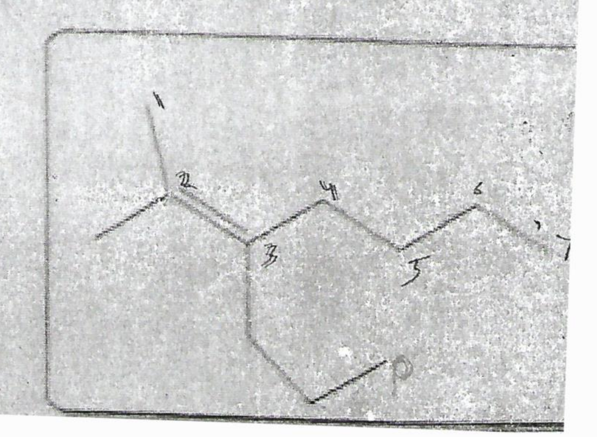
a) Alkane   b) alkene   c) Alkyne   d) Alkyl halide

21) The IUPAC name of the following alkane:



a) 4-Ethyl-2,2,3,6-tetramethylheptane
b) 4-Ethyl-2,5,6,6-tetramethylheptane
c) 2,2,3,6-tetramethyl-4-Ethylheptane
d) 2-*tert*-Butyl-3-ethyl-5-methylhexane

22) The IUPAC name of the following alkene:



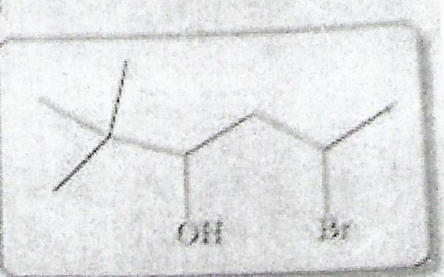
a) 2-methyl-3-propyl -2-heptene
b) 4-allyloctane
c) 3-butyl-2-methylhexene
d) 4-vinyloctane



23) Addition of Br_2 to 1,3-pentadiene produces:

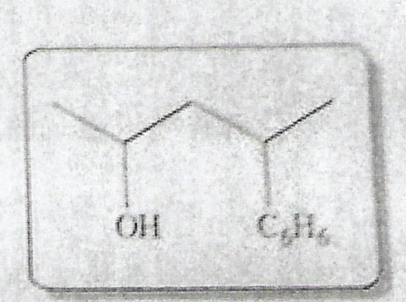
a) 4,5-Dibromo-2-pentene
b) 3,4-Dibromo-1-pentene
c) 3,4-Dibromo-2-pentene
d) 1,4-Dibromo-2-pentene

24) The IUPAC name of the following structure:



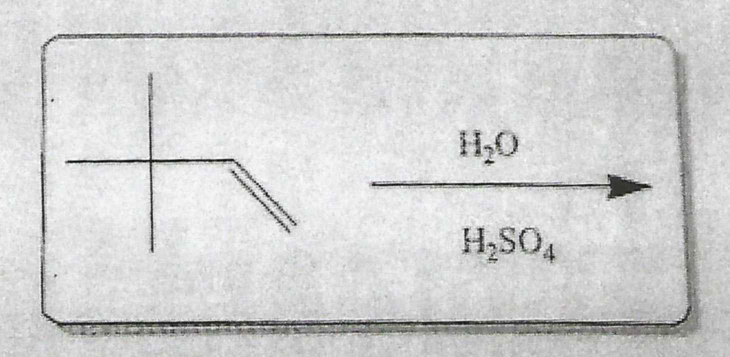
a) 5-Bromo-2,2-dimethyl-3-hexanol
b) 3-Hydroxy-2,2-dimethyl-5-bromohexane
c) 3-Hydroxy-5-bromo-2,2-dimethylhexane
d) 2-Bromo-5,5-dimethyl-4-hexanol

25) The name of the following structure is:



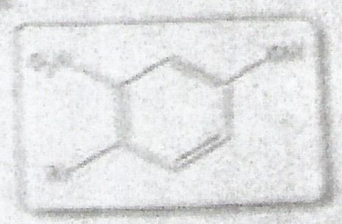
a) 2-Hydroxypentylbenzene
b) 2-Phenylpentanol
c) 2-Phenyl-4-hydroxypentane
d) 4-Phenyl-2-pentanol

26) The name of the product of this reaction is:



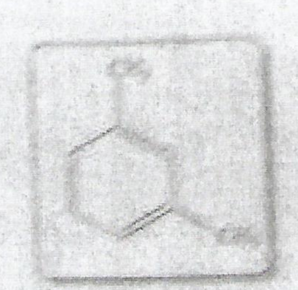
a) *tert*-Butanol
b) 2,2-Dimethylbutane
c) *tert*-Butyl alcohol
d) 3,3-Dimethyl-2-butanol

32) The IUPAC name for the following compound is:



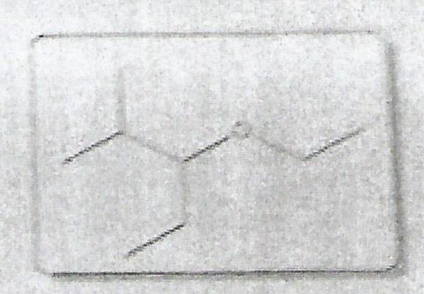
a) 4-Bromo-1-hydroxy-3-nitrobenzene
b) 4-Bromo-3-nitrophenol
c) 1-Bromo-3-hydroxy-2-nitrophenol
d) 3-Nitro-4-bromophenol

33) The common name for the following compound is:



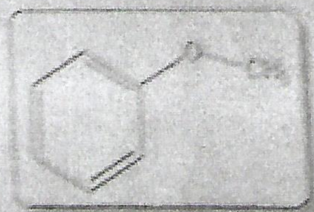
a) 1,3-Dimethylbenzene
b) m-Dimethylbenzene
c) m-Xylene
d) m-methyltoluene

34) The IUPAC name for the following compound is:



a) 3-Ethoxy-2-methylpentane
b) 2-Methyl-3-ethoxypentane
c) 3-Ethyl-2-methylpentane
d) 2-Methyl-3-ethylpentane

35) The common name for the following compound is:



a) Phenyl methyl ether
b) Benzene methyl ether
c) Methyl phenyl ether
d) Methoxybenzene

36) In a reaction of C_6H_5R, the main product is the meta isomer, so the group R is:

a) –Cl   b) –COOH   c) –NH_2 d) –OH

37) The electrophile in aromatic nitration is:

a) NO_2 b) $^+NO_2$ c) HNO_3 d) H_2SO_4

38) Among the following statements on the nitration of aromatic compounds, the false one is:

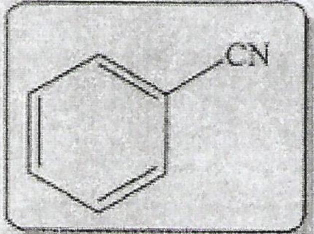
a) The rate of nitration of toluene is greater than that of benzene.

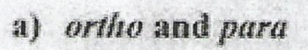
b) Nitration is an electrophilic aromatic substitution reaction.

c) The electrophile in the nitration of benzene is HNO_3

d) The mixture of nitration is HNO_3/H_2SO_4

39) If the following compound is nitrated, the nitro group will enter in………. position.





a) *ortho* and *para*

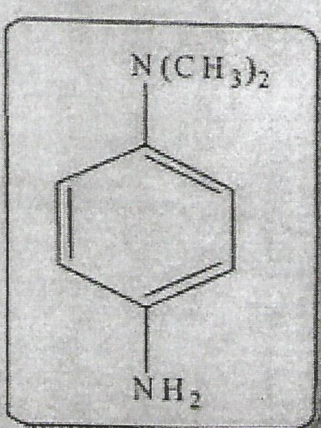


b) *ortho*

c) *para*

d) *meta*

40) If the following compound is nitrated, the nitro group will enter in………. position



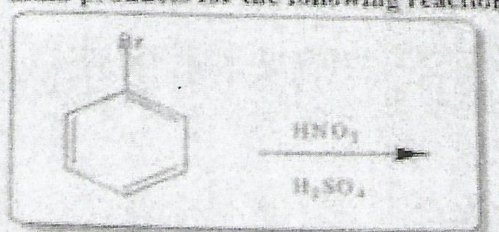
a) *ortho* to $N(CH_3)_2$

b) *meta to* NH_2

c) *ortho* NH_2

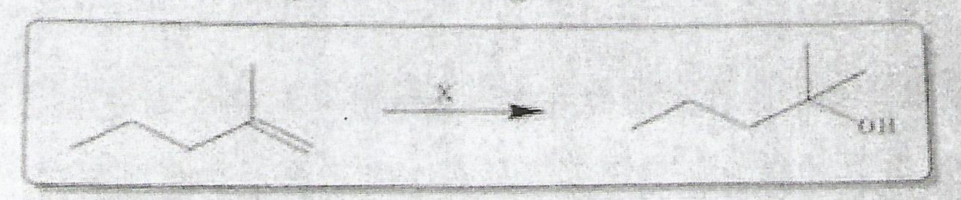
d) none of the above

41) The main products for the following reaction:



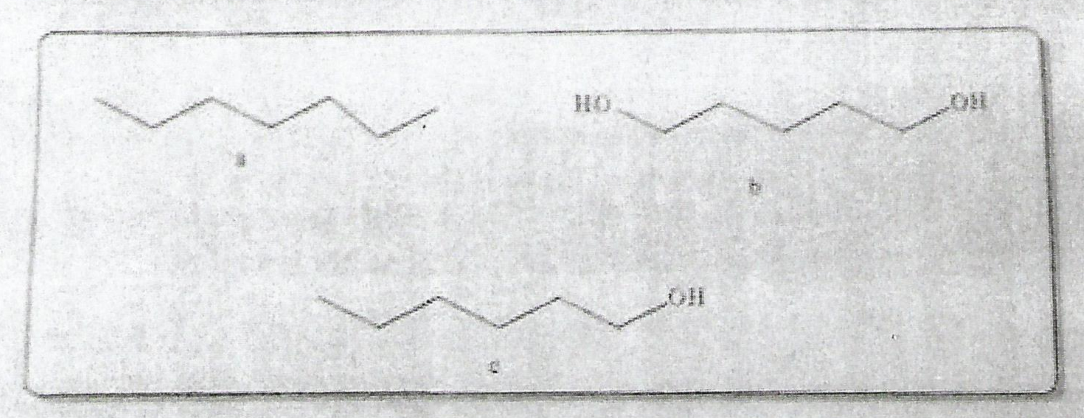
a) *o*-Bromonitrobenzene
b) *m*-Bromonitrobenzene
c) *p*-Bromonitrobenzene
d) a & c

42) In the following reaction the reagent 'X' is:



a) H_2O/H^+ b) $KMnO_4$ c) $NaNH_2$ d) None of the above

For question 43 and 44 consedier the following compounds



43) Arrangement of these compounds in order of increasing boiling point:

a) a < b < c b) a < c < b c) b < a < c d) c < a < b

44) Which of the above compounds is infinity soluble in water

a) a b) b c) c d) a and c

45) The reaction of ethanol with NaOH gives:

a) Sodium ethoxide b) Hydrogen c) a & b d) No. reaction

46) The electrophile in aromatic sulfonation is:

a) $^{+}NO_2$ b) HSO_3^{+} c) H_2SO_4 d) a & b

For question 47-50 consider the following compounds

I: CH_3, OH

II: $(CH_3)_3COH$

III: OH

IV: OH

V: OH, CH_3

47) Which are secondary alcohols?

a) II b) III c) IV d) III and IV

48) Which is allylalcohol?

a) I b) II c) III d) IV

49) Which compound is soluble in NaOH?

a) I b) IV c) V d) Non of them

50) Which alcohol does not change the orange color of H_2CrO_4 ?

a) I b) II c) III d) I and II

1- C

2- a

3- a

4- b

5- c

5- a

7- c

8- a

9- b

10- c → مع حذف H

11) b

12) a

13) c

14) d

15) b → غير مقرره هذا الترم

16) c

17) b

18) b

19) b

20) غير مقرر هذا الترم

21) a

22) a

23)

24) غير مقرر هذا الترم

25) " " " "

26) " " " " " "

32) b

33) c

34) غير مقرر هذا الترم

35) c

36) b

37) b

38) c

39) d

40)

41) d

42) a)

43) b غير مقرر هذا الترم

44) " " " "

45) " " "

46) HSO_3^+

47, 48, 49, 50 غير مقرر